

MAR 23 1950

NATIONAL ADVISORY COMMITTEE
FOR AERONAUTICS.

SUBJECT HEADINGS
FOR
INDEX OF NACA PUBLICATIONS

August 1949

Washington, D. C

FILE COPY

To be returned to
the files of the National
Advisory Committee
for Aeronautics
Washington, D. C.

National Advisory Committee for Aeronautics

SUBJECT HEADINGS FOR INDEX OF NACA PUBLICATIONS

<u>Subject Heading Number</u>	<u>Subject Heading Outline</u>	<u>Standard Subject Heading Title</u>
1	Aerodynamics	Aerodynamics
1.1	Fundamental Aerodynamics	Aerodynamics, Fundamental
1.1.1	Incompressible Flow	Flow, Incompressible
1.1.2	Compressible Flow	Flow, Compressible
1.1.2.1	Subsonic Flow	Flow, Subsonic
1.1.2.2	Mixed Flow	Flow, Mixed
1.1.2.3	Supersonic Flow	Flow, Supersonic
1.1.3	Viscous Flow	Flow, Viscous
1.1.3.1	Laminar Flow	Flow, Laminar
1.1.3.2	Turbulent Flow	Flow, Turbulent
1.1.3.3	Jet Mixing	Flow, Jet Mixing
1.1.4	Aerodynamics with Heat	Aerodynamics with Heat
1.1.4.1	Heating	Heating, Aerodynamic
1.1.4.2	Heat Transfer	Heat Transfer, Aerodynamic
1.1.4.3	Additions of Heat	Heat, Additions of - Aerodynamic
1.1.5	Flow of Rarefied Gases	Flow of Rarefied Gases
1.1.5.1	Slip Flow	Flow, Slip
1.1.5.2	Free Molecule Flow	Flow, Free Molecule
1.2	Wings	Wings
1.2.1	Wing Sections	Wing Sections

<u>Subject Heading Number</u>	<u>Subject Heading Outline</u>	<u>Standard Subject Heading Title</u>
1.2.1.1	Section Theory	Wing Section Theory
1.2.1.2	Section Variables	Wing Sections - Section Variables
1.2.1.2.1	Camber	Wing Sections - Camber
1.2.1.2.2	Thickness	Wing Sections - Thickness
1.2.1.2.3	Thickness Distribution	Wing Sections - Thickness Distribution
1.2.1.2.4	Inlets and Exits	Inlets and Exits - Wing Sections
1.2.1.2.5	Surface Conditions	Surface Conditions - Wing Sections
1.2.1.3	Designated Profiles	Wing Sections - Profiles, Designated
1.2.1.4	High Lift Devices	High Lift Devices - Wing Sections
1.2.1.4.1	Plain Flaps	Flaps, Plain - Wing Sections
1.2.1.4.2	Split Flaps	Flaps, Split - Wing Sections
1.2.1.4.3	Slotted Flaps	Flaps, Slotted - Wing Sections
1.2.1.4.4	Leading Edge Flaps	Flaps, Leading Edge - Wing Sections
1.2.1.4.5	Slots and Slats	Slots and Slats - Wing Sections
1.2.1.5	Controls	Controls - Wing Sections
1.2.1.5.1	Flap Type	Controls, Flap Type - Wing Sections
1.2.1.5.2	Spoilers	Controls, Spoiler - Wing Sections
1.2.1.6	Boundary Layer	Boundary Layer - Wing Sections
1.2.1.6.1	Characteristics	Boundary Layer Characteristics - Wing Sections

<u>Subject Heading Number</u>	<u>Subject Heading Outline</u>	<u>Standard Subject Heading Title</u>
1.2.1.6.2	Control	Boundary Layer Control - Wing Sections
1.2.1.7	Reynolds Number Effects	Reynolds Number Effects - Wing Sections
1.2.1.8	Mach Number Effects	Mach Number Effects - Wing Sections
1.2.1.9	Wake	Wing Sections - Wake
1.2.2	Complete Wings	Wings, Complete
1.2.2.1	Wing Theory	Wings, Complete - Theory
1.2.2.2	Wing Variables	Wings, Complete - Design Variables
1.2.2.2.1	Profiles	Profiles - Complete Wings
1.2.2.2.2	Aspect Ratio	Wings, Complete - Aspect Ratio
1.2.2.2.3	Sweep	Wings, Complete - Sweep
1.2.2.2.4	Taper and Twist	Wings, Complete - Taper and Twist
1.2.2.2.5	Inlets and Exits	Inlets and Exits - Complete Wings
1.2.2.2.6	Surface Conditions	Surface Conditions - Complete Wings
1.2.2.2.7	Dihedral	Dihedral - Complete Wings
1.2.2.3	High Lift Devices	High Lift Devices - Complete Wings
1.2.2.3.1	Trailing Edge Flaps	Flaps, Trailing Edge - Complete Wings
1.2.2.3.2	Slots and Slats	Slots and Slats - Complete Wings

<u>Subject Heading Number</u>	<u>Subject Heading Outline</u>	<u>Standard Subject Heading Title</u>
1.2.2.3.3	Leading Edge Flaps	Flaps, Leading Edge - Complete Wings
1.2.2.4	Controls	Controls - Complete Wings
1.2.2.4.1	Flap Type	Controls, Flap Type - Complete Wings
1.2.2.4.2	Spoilers	Controls, Spoiler - Complete Wings
1.2.2.4.3	All-Movable	Controls, All-Movable - Complete Wings
1.2.2.5	Reynolds Number Effects	Reynolds Number Effects - Complete Wings
1.2.2.6	Mach Number Effects	Mach Number Effects - Complete Wings
1.2.2.7	Wake	Wings, Complete - Wake
1.2.2.8	Boundary Layer	Boundary Layer - Complete Wings
1.2.2.8.1	Characteristics	Boundary Layer Characteristics - Complete Wings
1.2.2.8.2	Control	Boundary Layer Control - Complete Wings
1.3	Bodies	Bodies
1.3.1	Theory	Bodies - Aerodynamic Theory
1.3.2	Shape Variables	Bodies - Shape Variables
1.3.2.1	Fineness Ratio	Bodies - Fineness Ratio
1.3.2.2	Cross Section	Bodies - Cross Section
1.3.2.3	Thickness Distribution	Bodies - Thickness Distribution

<u>Subject Heading Number</u>	<u>Subject Heading Outline</u>	<u>Standard Subject Heading Title</u>
1.3.2.4	Surface Conditions	Bodies - Surface Conditions
1.3.2.5	Protuberances	Protuberances - Bodies
1.3.3	Canopies	Canopies
1.3.4	Ducted Bodies	Bodies, Ducted
1.3.4.1	Nose Shape	Bodies, Ducted - Nose Shape
1.3.4.2	Tail Shape	Bodies, Ducted - Tail Shape
1.3.4.3	Side Inlets	Inlets, Side - Ducted Bodies
1.3.4.4	Side Exits	Exits, Side - Ducted Bodies
1.3.5	Hulls	Hulls - Aerodynamic
1.4	Internal Aerodynamics	Internal Aerodynamics
1.4.1	Air Inlets	Air Inlets
1.4.1.1	Nose, Central	Air Inlets - Nose, Central
1.4.1.1.1	Propeller-Spinner-Cowl Combinations	Air Inlets - Propeller-Spinner-Cowl
1.4.1.1.2	Subsonic	Air Inlets - Central, Subsonic
1.4.1.1.3	Supersonic	Air Inlets - Central, Supersonic
1.4.1.2	Nose, Annular	Air Inlets - Nose, Annular
1.4.1.3	Wing Leading Edge	Air Inlets - Wing Leading Edge
1.4.1.4	Side	Air Inlets, Side
1.4.1.4.1	Scoops	Air Inlets, Scoops
1.4.1.4.2	Submerged	Air Inlets, Submerged
1.4.2	Ducts	Ducts

<u>Subject Heading Number</u>	<u>Subject Heading Outline</u>	<u>Standard Subject Heading Title</u>
1.4 2.1	Diffusers	Diffusers
1.4.2.1.1	Subsonic	Diffusers, Subsonic
1.4.2.1.2	Supersonic	Diffusers, Supersonic
1.4.2.2	Nozzles	Nozzles
1.4.2.3	Pipes	Pipes
1.4.2.4	Bends	Bends
1.4.3	Exits	Exits
1.4.4	Jet Pumps and Thrust Augmentors	Pumps, Jet and Thrust Aug- mentors
1.4.5	Cascades	Cascades
1.4.5.1	Theory	Cascades, Theory
1.4.5.2	Experiment	Cascades, Experiment
1.4.6	<u>Fans</u>	<u>Fans</u>
1.4.7	Boundary Layer	Boundary Layer, Internal Aerodynamics
1.4.7.1	Characteristics	Boundary Layer Characteristics - Internal Aerodynamics
1.4.7.2	Control	Boundary Layer Control - Internal Aerodynamics
1.5	Propellers	Propellers
1.5.1	Theory	Propeller Theory
1.5.2	Design Variables	Propellers - Design Variables
1.5.2.1	Blade Sections	Blade Sections - Propellers

<u>Subject Heading Number</u>	<u>Subject Heading Outline</u>	<u>Standard Subject Heading Title</u>
1.5.2.2	Solidity	Propellers - Solidity
1.5.2.3	Pitch Distribution	Propellers - Pitch Distribution
1.5.2.4	Blade Planforms	Propellers - Blade Planforms
1.5.2.5	Mach Number Effects	Mach Number Effects - Propellers
1.5.2.6	Pusher	Propellers, Pusher
1.5.2.7	Dual Rotation	Propellers, Dual Rotation
1.5.2.8	Interference of Bodies	Interference of Bodies - Propellers
1.5.2.9	Pitch and Yaw	Propellers - Pitch and Yaw
1.5.2.10	Diameter	Propellers - Diameter
1.5.3	Designated Types	Propellers - Designated Types
1.5.4	Slipstream	Slipstream - Propellers
1.5.5	Selection Charts	Propeller Selection Charts
1.5.6	Operating Conditions	Propeller Operating Conditions
1.5.7	Propeller-Spinner-Cowl Combinations	Propeller-Spinner-Cowl Combinations
1.6	Rotating Wings	Wings, Rotating
1.6.1	Theory	Wings, Rotating - Theory
1.6.2	Experimental Studies	Wings, Rotating - Experimental Studies
1.6.2.1	Power-Driven	Wings, Rotating - Power Driven
1.6.2.2	Autorotating	Wings, Rotating - Autorotating
1.7	Aircraft	Aircraft

<u>Subject Heading Number</u>	<u>Subject Heading Outline</u>	<u>Standard Subject Heading Title</u>
1.7.1	Airplanes	Airplanes
1.7.1.1	Components in Combination	Airplanes - Components in Combination
1.7.1.1.1	Wing-Fuselage	Wing-Fuselage Combinations - Airplanes
1.7.1.1.2	Wing-Nacelle	Wing-Nacelle Combinations - Airplanes
1.7.1.1.3	Tail-Wing and Fuselage	Tail-Wing and Fuselage Combinations - Airplanes
1.7.1.1.4	Propeller and Jet Interference	Propeller and Jet Combinations - Airplanes
1.7.1.1.5	External Stores	External Stores, Effects of - Airplanes
1.7.1.2	Specific Airplanes	Airplanes - Specific Types
1.7.1.3	Performance	Airplanes - Performance
1.7.2	Missiles	Missiles
1.7.2.1	Components in Combination	Missiles - Components in Combination
1.7.2.1.1	Wing-Body	Wing-Body Combinations - Missiles
1.7.2.1.2	Tail-Body	Tail-Body Combinations - Missiles
1.7.2.1.3	Jet Interference	Interference, Jet - Missiles
1.7.2.1.4	Wing-Tail-Body	Wing-Tail-Body Combinations - Missiles
1.7.2.2	Specific Missiles	Missiles, Specific Types

<u>Subject Heading Number</u>	<u>Subject Heading Outline</u>	<u>Standard Subject Heading Title</u>
1.7.3	Rotating Wing Aircraft	Rotating Wing Aircraft
1.7.3.1	Autogiros	Autogiros
1.7.3.2	Helicopters	Helicopters
1.7.4	Seaplanes	Seaplanes
1.7.4.1	General Studies	Seaplanes - General Studies
1.7.4.2	Specific Types	Seaplanes - Specific Types
1.7.5	Airships	Airships
1.7.6	Biplanes and Triplanes	Biplanes and Triplanes
1.8	Stability and Control	Stability and Control
1.8.1	Stability	Stability
1.8.1.1	Static	Stability, Static
1.8.1.1.1	Longitudinal	Stability, Longitudinal - Static
1.8.1.1.2	Lateral	Stability, Lateral - Static
1.8.1.1.3	Directional	Stability, Directional - Static
1.8.1.2	Dynamic	Stability, Dynamic
1.8.1.2.1	Longitudinal	Stability, Longitudinal - Dynamic
1.8.1.2.2	Lateral and Directional	Stability, Lateral and Directional - Dynamic
1.8.1.2.3	Damping Derivatives	Damping Derivatives - Stability
1.8.2	Control	Control
1.8.2.1	Longitudinal	Control, Longitudinal

<u>Subject Heading Number</u>	<u>Subject Heading Outline</u>	<u>Standard Subject Heading Title</u>
1.8.2.2	Lateral	Control, Lateral
1.8.2.3	Directional	Control, Directional
1.8.2.4	Airbrakes	Airbrakes
1.8.2.5	Hinge Moments	Control, Hinge Moments
1.8.2.6	Automatic	Control, Automatic
1.8.3	Spinning	Spinning
1.8.4	Stalling	Stalling
1.8.5	Flying Qualities	Flying Qualities
1.8.6	Mass and Gyroscopic Problems	Mass and Gyroscopic Problems
1.8.7	Tumbling	Tumbling
1.8.8	Automatic Stabilization	Stabilization, Automatic
1.9	Aeroelasticity	Aeroelasticity
1.10	Parachutes	Parachutes

<u>Subject Heading Number</u>	<u>Subject Heading Outline</u>	<u>Standard Subject Heading Title</u>
2	Hydrodynamics	Hydrodynamics
2.1	Theory	Hydrodynamic Theory
2.2	General Arrangement Studies	Hydrodynamic Configurations - General Studies
2.3	Seaplane Hull Variables	Hull Variables - Seaplane
2.3.1	Length-Beam Ratio	Hulls, Seaplane - Length-Beam Ratio
2.3.2	Deadrise	Hulls, Seaplane - Deadrise
2.3.3	Steps	Hulls, Seaplane - Steps
2.3.4	Afterbody Shape	Hulls, Seaplane - Afterbody Shape
2.3.5	Forebody Shape	Hulls, Seaplane - Forebody Shape
2.3.6	Chines	Hulls, Seaplane - Chines
2.4	Specific Seaplanes and Hulls	Seaplanes and Hulls - Specific Types
2.5	Lateral Stabilizers	Stabilizers, Lateral - Hydrodynamic
2.5.1	Wing-Tip Float	Floats, Wing Tip
2.6	Planing Surfaces	Planing Surfaces, Hydrodynamic
2.7	Hydrofoils	Hydrofoils
2.8	Surface Craft	Surface Craft
2.9	Ditching Characteristics	Ditching Characteristics
2.10	Stability and Control	Stability and Control - Hydrodynamic
2.10.1	Longitudinal	Stability and Control, Longitudinal - Hydrodynamic

Subject
Heading
Number

Subject Heading Outline

Standard Subject Heading Title

2.10.2

Lateral

Stability and Control, Lateral -
Hydrodynamic

2.10.3

Directional

Stability and Control, Directional -
Hydrodynamic

<u>Subject Heading Number</u>	<u>Subject Heading Outline</u>	<u>Standard Subject Heading Title</u>
3	Propulsion	Propulsion
3.1	Complete Systems	Propulsion - Complete Systems
3.1.1	Reciprocating Engines	Engines, Reciprocating
3.1.1.1	Spark-Ignition Engines	Engines, Reciprocating - Spark-Ignition
3.1.1.2	Compression-Ignition (Diesel) Engines	Engines, Reciprocating - Compression-Ignition (Diesel)
3.1.2	Reciprocating Engines-Turbines	Engines with Turbines, Reciprocating
3.1.2.1	Turbosupercharged Engines	Engines, Turbosupercharged
3.1.2.2	Compound Engines	Engines, Compound
3.1.2.3	Gas Generator-Turbine Engines	Engines, Turbine - Gas Generator
3.1.3	Turbo-Jet Engines	Engines, Turbo-Jet
3.1.4	Turbo-Propeller Engines	Engines, Turbo-Propeller
3.1.5	Ducted Propeller Engines	Engines, Ducted Propeller
3.1.6	Pulse Jet Engines	Engines, Pulse Jet
3.1.7	Ram Jet Engines	Engines, Ram Jet
3.1.8	Rocket Engines	Engines, Rocket
3.1.9	Jet-Driven Rotors	Rotors, Jet-Driven
3.1.10	Nuclear Energy Systems	Nuclear Energy Systems
3.1.11	Miscellaneous Engines	Engines, Miscellaneous
3.1.12	Comparison of Engine Types	Engine Types, Comparison

<u>Subject Heading Number</u>	<u>Subject Heading Outline</u>	<u>Standard Subject Heading Title</u>
3.2	Control of Engines	Engines, Control
3.2.1	Charging and Control of Reciprocating Engines	Engines, Reciprocating - Charging and Control
3.2.1.1	Spark-Ignition Engines	Engines, Spark-Ignition - Charging and Control
3.2.1.2	Compression-Ignition Engines	Engines, Compression-Ignition - Charging and Control
3.2.1.3	Compound Engines	Engines, Compound - Charging and Control
3.2.2	Control of Turbojet Engines	Engines, Control - Turbojet
3.2.3	Control of Turbine-Ramjet Engines	Engines, Control - Turbine-Ramjet
3.2.4	Control of Turbine-Propeller Engines	Engines, Control - Turbine-Propeller Engines
3.2.5	Control of Pulse-Jet Engines	Engines, Control - Pulse Jet
3.2.6	Control of Ramjet Engines	Engines, Control - Ramjet
3.2.7	Control of Rocket Engines	Engines, Control - Rocket
3.2.8	Control of Gas Generator Engines	Engines, Control - Gas Generator
3.3	Auxiliary Booster Systems	Booster Systems, Auxiliary
3.3.1	Reciprocating Engines	Booster Systems, Auxiliary - Reciprocating Engines
3.3.2	Gas Turbines	Booster Systems, Auxiliary - Gas Turbines

<u>Subject Heading Number</u>	<u>Subject Heading Outline</u>	<u>Standard Subject Heading Title</u>
3.3.2.1	Liquid Injection	Turbines, Gas - Liquid Injection
3.3.2.2	Afterburning	Turbines, Gas - Afterburning
3.3.2.3	Bleed-off	Turbines, Gas - Bleed-off
3.3.3	Rocket Assist	Rocket Assist
3.4	Fuels	Fuels
3.4.1	Preparation	Fuels, Preparation
3.4.2	Physical and Chemical Properties	Fuels - Properties, Physical and Chemical
3.4.3	Relation to Engine Performance	Fuels - Relation to Engine Performance
3.4.3.1	Reciprocating Engines	Fuels - Reciprocating Engines
3.4.3.1.1	Spark-Ignition	Fuels - Spark-Ignition Engines
3.4.3.1.2	Compression-Ignition (Diesel)	Fuels - Compression-Ignition (Diesel) Engines
3.4.3.2	Turbine Engines, Ram Jets, and Pulse Jets	Fuels - Turbine Engines, Ram Jets, and Pulse Jets
3.4.3.3	Rockets (Includes Fuel and Oxidant)	Fuels - Rockets (Includes Fuel and Oxidant)
3.5	Combustion and Combustors	Combustion and Combustors
3.5.1	General Combustion Research	Combustion Research - General
3.5.1.1	Laminar-Flow Combustion	Combustion, Laminar-Flow
3.5.1.2	Turbulent-Flow Combustion	Combustion, Turbulent-Flow

<u>Subject Heading Number</u>	<u>Subject Heading Outline</u>	<u>Standard Subject Heading Title</u>
3.5.1.3	Detonation	Combustion - Detonation
3.5.1.4	Effects of Fuel Atomization	Combustion - Effects of Fuel Atomization
3.5.1.5	Reaction Mechanisms	Combustion - Reaction Mechanisms
3.5.1.6	Ignition of Gases	Combustion - Ignition of Gases
3.5.2	Effect of Engine Operating Conditions and Combus- tion Chamber Geometry	Combustion - Effect of Engine Operating Conditions and Combustion Chamber Geometry
3.5.2.1	Reciprocating Engines	Combustion - Reciprocating Engines
3.5.2.1.1	Spark-Ignition Engines	Combustion - Spark-Ignition Engines
3.5.2.1.2	Compression- Ignition (Diesel) Engines	Combustion - Compression- Ignition (Diesel) Engines
3.5.2.2	Turbine Engines	Combustion - Turbine Engines
3.5.2.3	Ram-Jet Engines	Combustion - Ram-Jet Engines
3.5.2.4	Pulse Jet Engines	Combustion - Pulse Jet Engines
3.5.2.5	Rocket Engines	Combustion - Rocket Engines
3.6	Compression and Com- pressors	Compression and Compressors
3.6.1	Flow Theory and Experi- ment	Compressor Flow Theory and Experiment
3.6.1.1	Axial Flow	Compressors - Axial Flow
3.6.1.2	Radial Flow	Compressors - Radial Flow
3.6.1.3	Mixed Flow	Compressors - Mixed Flow

<u>Subject Heading Number</u>	<u>Subject Heading Outline</u>	<u>Standard Subject Heading Title</u>
3.6.1.4	Positive Displacement	Compressors - Positive Displacement
3.6.2	Stress and Vibration	Compressors - Stress and Vibration
3.6.3	Matching	Compressors - Matching
3.7	Turbines	Turbines
3.7.1	Flow Theory and Experiment	Turbine Flow Theory and Experiment
3.7.1.1	Axial Flow	Turbines - Axial Flow
3.7.1.2	Radial Flow	Turbines - Radial Flow
3.7.1.3	Mixed Flow	Turbines - Mixed Flow
3.7.2	Cooling	Turbine Cooling
3.7.3	Stress and Vibration	Turbines - Stress and Vibration
3.7.4	Matching	Turbines - Matching
3.8	Friction and Lubrication	Friction and Lubrication
3.8.1	Theory and Experiment	Friction and Lubrication - Theory and Experiment
3.8.1.1	Hydrodynamic Theory	Friction and Lubrication - Hydrodynamic Theory
3.8.1.2	Chemistry of Lubrication	Lubrication, Chemistry
3.8.1.3	Surface Conditions	Friction and Lubrication - Surface Conditions
3.8.2	Sliding Contact Surfaces	Contact Surfaces, Sliding
3.8.2.1	Sleeve Bearings	Bearings, Sleeve

<u>Subject Heading Number</u>	<u>Subject Heading Outline</u>	<u>Standard Subject Heading Title</u>
3.8.2.2	<u>Cylinder and Piston Mechanisms</u>	<u>Cylinder and Piston Mechanisms</u>
3.8.2.3	<u>Slipper Plate</u>	<u>Bearings, Slipper Plate</u>
3.8.2.4	<u>Kingsbury and Mitchell Bearings</u>	<u>Bearings, Kingsbury and Mitchell</u>
3.8.3	<u>Rolling Contact Surfaces</u>	<u>Surfaces, Contact - Rolling</u>
3.8.3.1	<u>Anti-Friction Bearings</u>	<u>Bearings, Anti-Friction</u>
3.8.4	<u>Sliding and Rolling Contact Surfaces</u>	<u>Surfaces, Contact - Sliding and Rolling</u>
3.8.4.1	<u>Gears</u>	<u>Gears</u>
3.8.5	<u>Lubricants</u>	<u>Lubricants</u>
3.9	<u>Heat Transfer</u>	<u>Heat Transfer</u>
3.9.1	<u>Theory and Experiment</u>	<u>Heat Transfer Theory and Ex- periment</u>
3.9.1.1	<u>Cascades</u>	<u>Heat Transfer, Cascades</u>
3.9.2	<u>Heat Exchangers</u>	<u>Heat Exchangers</u>
3.9.2.1	<u>Radiators</u>	<u>Radiators</u>
3.9.2.2	<u>Intercoolers</u>	<u>Intercoolers</u>
3.9.2.3	<u>Aftercoolers</u>	<u>Aftercoolers</u>
3.9.2.4	<u>Regenerators</u>	<u>Regenerators</u>
3.9.2.5	<u>Oil Coolers</u>	<u>Oil Coolers</u>
3.10	<u>Cooling of Engines</u>	<u>Engines, Cooling</u>
3.10.1	<u>Reciprocating Engines</u>	<u>Engines, Reciprocating - Cooling</u>

<u>Subject Heading Number</u>	<u>Subject Heading Outline</u>	<u>Standard Subject Heading Title</u>
3.10.1.1	Liquid Cooled	Engines, Reciprocating - Liquid Cooled
3.10.1.2	Air Cooled	Engines, Reciprocating - Air Cooled
3.10.2	Gas Turbine Systems	Cooling - Gas Turbine Systems
3.10.3	Ram Jets	Cooling - Ram Jets
3.10.4	Pulse Jets	Cooling - Pulse Jets
3.10.5	Rockets	Cooling - Rockets
3.11	Properties of Gases	Gases, Properties
3.11.1	Kinetic	Gases, Kinetic - Properties
3.11.2	Thermodynamic	Gases, Thermodynamic - Properties
3.12	<u>Accessories and Accessory Functions</u>	<u>Accessories and Accessory Functions</u>
3.12.1	<u>Fuel Systems</u>	<u>Fuel Systems</u>
3.12.1.1	<u>Spark Ignition Engines</u>	<u>Fuel Systems - Engines, Spark-Ignition</u>
3.12.1.2	<u>Compression Ignition Engines</u>	<u>Fuel Systems - Engines, Compression-Ignition</u>
3.12.1.3	<u>Compound Engines</u>	<u>Fuel Systems - Engines, Compound</u>
3.12.1.4	Turbojet Engines	Fuel Systems - Engines, Turbojet
3.12.1.5	Turbine-Propeller Engines	Fuel Systems - Engines, Turbine-Propeller
3.12.1.6	Pulse-Jet Engines	Fuel Systems - Engines, Pulse-Jet
3.12.1.7	Ramjet Engines	Fuel Systems - Engines, Ramjet

<u>Subject Heading Number</u>	<u>Subject Heading Outline</u>	<u>Standard Subject Heading Title</u>
3.12.1.8	Rocket Engines	Fuel Systems - Engines, Rocket
3.12.2	Ignition Systems	Ignition Systems
3.12.3	Starting Systems	Starting Systems
3.12.4	Lubrication Systems	Lubrication Systems
3.12.5	Cooling Systems	Cooling Systems
3.13	Vibration and Flutter	Propulsion Systems - Vibration and Flutter

<u>Subject Heading Number</u>	<u>Subject Heading Outline</u>	<u>Standard Subject Heading Title</u>
4	Aircraft Loads and Construction	Loads and Construction Aircraft
4 1	Loads	Loads
4 1 1	Aerodynamic	Loads, Aerodynamic
4.1 1.1	Wings	Loads, Aerodynamic - Wings
4.1.1 1.1	Steady Loads	Loads, Steady - Wings
4 1 1.1 2	Maneuvering	Loads, Maneuvering - Wings
4.1 1 1.3	Gust Loads	Loads, Gust - Wings
4 1.1 2	Tail	Loads, Aerodynamic - Tail
4.1 1.2.1	Steady Loads	Loads, Steady - Tail
4.1 1.2.2	Maneuvering	Loads, Maneuvering - Tail
4.1.1.2 3	Buffeting and Gust	Loads, Buffeting and Gust - Tail
4 1 1.3	Fuselage, Nacelles, and Canopies	Loads - Fuselage Nacelles, and Canopies
4.1.1.4	Rotating Wings	Loads - Rotating Wings
4.1.1.5	Aeroelasticity	Loads - Aeroelasticity
4 1.2	Landing	Loads, Landing
4 1.2.1	Impact	Loads, Landing - Impact
4.1.2.1 1	Land	Loads Landing - Impact, Land
4.1.2.1.2	Water	Loads, Landing - Impact, Water
4.1 2 2	Ground-Run	Loads, Landing - Ground-Run
4.1 2.2.1	Land	Loads, Landing - Ground-Run, Land
4.1.2.2.2	Water	Loads, Landing - Ground-Run, Water

<u>Subject Heading Number</u>	<u>Subject Heading Outline</u>	<u>Standard Subject Heading Title</u>
4 1 2 3	Pre-Landing Conditions	Loads, Landing - Pre-Landing Conditions
4.2	Vibration and Flutter	Vibration and Flutter
4 2 1	Wings and Ailerons	Vibration and Flutter - Wings and Ailerons
4 2.2	Tails	Vibration and Flutter - Tails
4 2.2 1	Elevators and Rudders	Vibration and Flutter - Elevators and Rudders
4 2.2.2	Tabs	Vibration and Flutter - Tabs
4 2.3	Bodies	Vibration and Flutter - Bodies
4 2.4	Propeller, Fans, and Compressors	Vibration and Flutter - Propellers Fans and Compressors
4 2.5	Rotating Wing Aircraft	Vibration and Flutter - Rotating Wing Aircraft
4 3	Structures	Structures
4.3 1	Columns	Columns, Structural
4.3.1.1	Tubular	Columns, Tubular
4 3.1 2	Beams	Columns, Beam
4 3 1 3	Sections	Columns - Sections
4 3 2	Frames, Gridworks, and Trusses	Frames, Gridworks and Trusses
4 3 3	Plates	Plates Structural
4 3 3 1	Flat	Plates, Flat
4 3 3 1 1	Unstiffened	Plates Flat - Unstiffened

<u>Subject Heading Number</u>	<u>Subject Heading Outline</u>	<u>Standard Subject Heading Title</u>
4.3 3.1.2	Stiffened	Plates, Flat - Stiffened
4.3.3.2	Curved	Plates, Curved
4.3.3.2.1	Unstiffened	Plates, Curved - Unstiffened
4.3.3.2.2	Stiffened	Plates, Curved - Stiffened
4.3.4	Beams	Beams, Structural
4.3.4.1	Box	Beams, Box
4.3.4.2	Diagonal Tension	Beams, Diagonal Tension
4.3.5	Shells	Shells, Structural
4.3.5.1	Cylinders	Cylinders
4.3.5.1.1	Circular	Cylinders, Structural - Circular
4.3.5.1.2	Elliptical	Cylinders, Structural - Elliptical
4.3.5.2	Boxes	Boxes, Structural
4.3.6	Connections	Connections, Structural
4.3.6.1	Bolted	Connections, Bolted
4.3.6.2	Riveted	Connections, Riveted
4.3.6.3	Welded	Connections, Welded
4.3.6.4	Bonded	Connections, Bonded
4.3.7	Loads and Stresses	Loads and Stresses, Structural
4.3.7.1	Tension	Loads and Stresses, Structural - Tension
4.3.7.2	Compression	Loads and Stresses, Structural - Compression

<u>Subject Heading Number</u>	<u>Subject Heading Outline</u>	<u>Standard Subject Heading Title</u>
4 3 .7 3	Bending	Loads and Stresses Structural - Bending
4 .3 7 4	Torsion	Loads and Stresses Structural - Torsion
4 3 .7 5	Shear	Loads and Stresses Structural - Shear
4 .3 7 .6	Concentrated	Loads and Stresses, Structural - Concentrated
4 .3 .7 7	Dynamic	Loads and Stresses Structural - Dynamic
4 3 7 .7 1	Repeated	Loads and Stresses, Structural - Repeated Dynamic
4 3 7 7 2	Transient	Loads and Stresses, Structural - Transient Dynamic
4 3 7 .8	Normal Pressures	Loads and Stresses, Structural - Normal Pressures
4 3 .8	Weight Analysis	Weight Analysis

<u>Subject Heading Number</u>	<u>Subject Heading Outline</u>	<u>Standard Subject Heading Title</u>
5	<u>Materials</u>	<u>Materials</u>
5.1	Types	Materials - Types
5.1.1	Aluminum	Aluminum
5.1.2	Magnesium	Magnesium
5.1.3	Steels	Steels
5.1.4	Heat-Resisting Alloys	Alloys, Heat-Resisting
5.1.5	Ceramics	Ceramics
5.1.6	Plastics	Plastics
5.1.7	Woods	Woods
5.1.8	Adhesives	Adhesives
5.1.9	Protective Coatings	Protective Coatings
5.1.10	Fabrics	Fabrics
5.1.11	Sandwich and Laminates	Sandwich and Laminates
5.1.12	Ceramals	Ceramals
5.2	Properties	Materials, Properties
5.2.1	Tensile	Materials, Properties - Tensile
5.2.2	Compressive	Materials, Properties - Compressive
5.2.3	Creep	Materials, Properties - Creep
5.2.4	Stress-Rupture	Materials, Properties - Stress-Rupture
5.2.5	Fatigue	Materials, Properties - Fatigue
5.2.6	Shear	Materials, Properties - Shear

<u>Subject Heading Number</u>	<u>Subject Heading Outline</u>	<u>Standard Subject Heading Title</u>
5.2.7	Flexural	Materials, Properties - Flexure
5.2.8	Corrosion Resistance	Materials, Properties - Corrosion Resistance
5.2.9	Structure	Materials, Properties - Structure
5.2.10	Effects of Nuclear Radiation	Materials, Properties - Effects of Nuclear Radiation
5.2.11	Thermal	Materials, Properties - Thermal
5.2.12	Multi-Axial Stress	Materials, Properties - Multi-Axial Stress
5.2.13	Plasticity	Materials, Properties - Plasticity
5.3	Operating Stresses and Conditions	Materials, Operating Stresses and Conditions
5.3.1	Airframe	Materials, Airframe - Operating Stresses
5.3.2	Propulsion System	Materials, Propulsion System - Operating Stresses

<u>Subject Heading Number</u>	<u>Subject Heading Outline</u>	<u>Standard Subject Heading Title</u>
6	Meteorology	Meteorology
6.1	Atmosphere	Atmosphere
6.1.1	Standard Atmosphere	Standard Atmosphere
6.1.2	Gusts	Gusts, Atmospheric
6.1.2.1	Structure	Gusts, Structure
6.1.2.2	Frequency	Gusts, Frequency
6.1.2.3	Turbulence	Gusts, Turbulence
6.1.2.4	Alleviation	Gusts, Alleviation
6.1.3	Electricity	Electricity, Atmospheric
6.2	Ice Formation	Ice Formation

<u>Subject Heading Number</u>	<u>Subject Heading Outline</u>	<u>Standard Subject Heading Title</u>
7	<u>Operating Problems</u>	<u>Operating Problems</u>
7.1	<u>Safety</u>	<u>Safety</u>
7.1.1	<u>OK for You</u> Pilot Escape Techniques	Safety - Pilot Escape Techniques
7.2	<u>Navigation</u>	<u>Navigation</u>
7.3	Ice Prevention and Removal	Ice Prevention and Removal
7.3.1	Engine Induction Systems	Ice Prevention and Removal - Engine Induction Systems
7.3.2	Propellers	Ice Prevention and Removal - Propellers
7.3.3	Wings and Tails	Ice Prevention and Removal - Wings and Tails
7.3.4	Windshields	Ice Prevention and Removal - Windshields
7.3.5	Miscellaneous Accessories	Ice Prevention and Removal - Accessories, Miscellaneous
7.3.6	Propulsion Systems	Ice Prevention and Removal - Propulsion Systems
7.4	Noise	Noise
7.5	Heating and Ventilating	Heating and Ventilating
7.6	Lightning Hazards	Lightning Hazards
7.7	Piloting Techniques	Piloting Techniques
7.8	Physiological	Operating Problems, Physiological
7.9	Fire Hazards	Fire Hazards
7.10	General	Operating Problems, General

<u>Subject Heading Number</u>	<u>Subject Heading Outline</u>	<u>Standard Subject Heading Title</u>
8	Instruments	Instruments
8.1	Flight	Instruments, Flight
8.2	Laboratory	Instruments, Laboratory
8.3	Meteorological	Instruments, Meteorological

<u>Subject Heading Number</u>	<u>Subject Heading Outline</u>	<u>Standard Subject Heading Title</u>
9	Research Equipment and Techniques	Research Equipment and Techniques
9 1	Equipment	Research Equipment
9 1 1	Wind Tunnels	Wind Tunnels
9 1 2	Free-Flight	Research Equipment Free-Flight
9 1 3	Towing Tanks and Impact Basins	Towing Tanks and Impact Basins
9 1 4	Propulsion Research Equipment	Research Equipment Propulsion
9 1 5	Propeller	Research Equipment Propeller
9 1 6	Materials	Research Equipment Materials
9 1 7	Structures	Research Equipment Structures
9 2	Technique	Research Technique
9 2 1	Corrections	Research Technique - Corrections
9 2 2	Aerodynamics	Research Technique, Aerodynamics
9 2 3	Hydrodynamics	Research Technique Hydrodynamics
9 2 4	Loads and Construction	Research Technique - Loads and Construction
9 2 5	Propulsion	Research Technique Propulsion
9 2 6	Operating Problems	Research Technique - Operating Problems
9 2 7	Mathematics	Research Technique Mathematics

Subject
Heading
Number

10

Subject Heading Outline

Nomenclature

Standard Subject Heading Title

Nomenclature

Subject
Heading
Number

11

Subject Heading Outline

Bibliographies and Indexes

Standard Subject Heading Title

Bibliographies and Indexes

<u>Subject Heading Number</u>	<u>Subject Heading Outline</u>	<u>Standard Subject Heading Title</u>
12	Technical Summaries	Summaries, Technical
13	Space Operations	

14 Space Sciences